Message

From: Johnston, Shelby [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=3E7ED660A4444005A74A05702EF09E0E-JOHNSTON, SHELBY]
Sent: 6/13/2018 6:28:09 PM
To: David N. Jenkins Personal Phone / Ex. 6
CC: Mark w [mwolf@tedlyon.com]; Ted Lyon [tblyon@tedlyon.com]; Lawrence Deas [lawrence@listondeas.com]; Jim Brinkman Personal Phone / Ex. 6
Subject: RE: Grenada Docs

David,
Thank you for these. I will be able to spend some time with these documents on Friday, but we can discuss after this sampling event when I will have more time. Do you have a map showing the temporary groundwater wells and any soil gas ports that your team may have in the field?
Thanks,
Shelby Johnston, RPM

From: David N. Jenkins Personal Phone / Ex. 6
Sent: Wednesday, June 13, 2018 12:42 PM
To: Johnston, Shelby <Johnston.Shelby@epa.gov>
Cc: Mark w <mwolf@tedlyon.com>; Ted Lyon <tblyon@tedlyon.com>; Lawrence Deas <lawrence@listondeas.com>; Jim Brinkman < Personal Phone / Ex. 6
Subject: Grenada Docs

Hi Shelby, Here are some documents that we discussed yesterday regarding the Grenada Site. Three of these show TCE trends in monitoring wells at the Grenada site. The most recent evaluation uses data from 2015. I have some more recent data from the EPAR4 DART database, but have invested the time to process these data.

After you have looked at these documents and the others being sent to you from Ted Lyon & Assoc. we should have a long talk. The TCE trend data show a few obvious things.

First, the migration of contaminated groundwater is not under control. Most of the wells evaluated are on Grenada Property because these wells are usually old enough to have at least 4 annual samples. Trend analysis with fewer samples probably isn't reliable. If we evaluate the more recent data we might be able to add some more wells to the list of wells with reliable TCE trends.

Second, TCE is decreasing in some shallow wells simply because it is moving downward into deeper portions of the aquifer. Interpretation of

TCE distribution must be done in 3D. Look at the RT-x wells around the equalization pond and at the well pair MW-5 and MW-10 for example for evidence of downward migration.

Third, the PRB doesn't work. The PRB does not protect Riverdale Creek. The PRB doesn't capture the entire width of the known plumes. Use the maps in the Grenada reports to find wells down gradient or at the ends of the PRB, then look at the TCE trends in these wells before and after January 2005 when the PRB was installed. TCE downgradient from the PRB is not remediated and discharges to Riverdale Creek.

Fourth, at least 4 TCE plumes cross Moose Lodge Road (MLR) and the north-south RR tracks and flow westward toward the Grenada Property, the Eastern Heights subdivision and ultimately to Riverdale Creek. You should see the maps and cross-sections in the various annual reports to help evaluate the trends. We have information regarding the sources of these 4 plumes.

Fifth, all but one of the plumes which cross MLR are known to have contaminated both the shallow and deep portions of the upper aquifer. I believe the southern most plume also has reached the lower aquifer too, the there aren't enough monitoring wells in that area to find the deep plume.

The first point may be the most important. The trend graphs should convince you that the migration of contaminated groundwater is not under control within the Grenada property. Contaminated groundwater from the MLR sites flow through the same aquifer to the same natural discharge area (Riverdale Creek). Even though we haven't done trend analyses for the MLR wells and other samples collected since 2015, there is no reason to believe the MLR plumes will behave differently from the plumes on the Grenada Property. TCE concentrations in groundwater will increase beneath the Eastern Heights Subdivision. TCE will migrate beneath more

of the Eastern Heights neighborhood. I believe that some sort of hydraulic containment must be established as soon as possible to protect the neighborhood and Riverdale Creek. This must be something which works, not another PRB.

As I said when we talked on the phone yesterday, the maps in the 2016 MLR Additional Investigation report (PDF p.94&94/2563) are not accurate and do not show the extent of contamination. The figures at the end of the 2018 Comprehensive Study Area report (PDF p.3496/3501) are better, but incomplete. The cross-sections in the 2016 MLR Additional Investigation report (beginning on PDF p.96/2563) are very useful, but you have to be careful to interpret the concentrations using the individual sample concentrations in ug/L NOT the Total Chlorinated Ethenes in micromohs. For example, the cross-section A-A' shows that nearly every TCE sample in the entire cross-section exceeds the MCL. That makes a plume hundreds of feet wide and 50 feet deep, and the trend graphs show the concentrations are going up.

I probably could list quite a few more points, but this should be enough to get you started. Call me anytime you want to talk about this stuff!

Dave

Personal Phone / Ex. 6